

Message Text

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SUBJ: OBSERVATIONS BY TAC TEAM AT BRNO FAIR

REF: STATE 38973

POUCHED: COMMERCE (FOR BEWT), AEC, AND DOD

1. FOLLOWING COMMENTS REFLECT PRELIMINARY OBSERVATIONS OF TECHNICAL ADVISORY COMMITTEE TEAM AT BRNO INTERNATIONAL ENGINEERING EXHIBITION AS THEY PERTAIN TO NUMERICAL CONTROL SYSTEMS AND MACHINE TOOLS, COMPUTERS, AND OTHER ELECTRONIC ITEMS. SINCE THESE ARE PRELIMINARY VIEWS AND A COMPLETE REPORT WILL BE MADE AFTER HANNOVER MACHINE TOOL SHOW AND RETURN OF TEAC TEAM TO WASHINGTON, IT IS REQUESTED THAT FOLLOWING INFORMATION NOT BE TRANSMITTED TO INDUSTRY MEMBERS OF TAC ON NUMERICAL CONTROLS AT THIS TIME.

2. NUMERICAL CONTROL SYSTEMS:

DISPLAY OF NUMERICAL CONTROL SYSTEMS, BOTH BLOC AND FREE WORLD, AT BRNO SHOW LIMITED. FROM PRIOR INFORMATION AND DISCUSSIONS WITH FOREIGN TECHNICIANS AT SHOW, QUITE EVIDENT COMECON COUNTRIES NOT DISPLAYING TOTAL INDIGENOUS
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CAPABILITY IN NC SYSTEMS AND MACHINE TOOLS AT BRNO. EXCEPT FOR REASONABLY COMPREHENSIVE CSSR DISPLAYS, MOST EXHIBITS APPEARED TO BE ONLY TOKEN REPRESENTATION OF EASTERN BLOC COUNTRIES.

A) ONLY BLOC COUNTRIES EXHIBITING BLOC PRODUCED CONTINUOUS PATH CONTOURING EQUIPMENT WERE USSR AND HUNGARY. HUNGARIAN SYSTEM WAS TWO AXIS, HARDWIRED, TRANSISTORIZED UNIT WITH A DESIGNED RESOLUTION OF 0.001 MM BUILT UNDER LICENSE FROM SAN GIORGIO IN ITALY. (SAN GIORGIO BEST OUT BENDIX FOR THIS LICENSING ARRANGEMENT LAST YEAR AFTER OC APPROVED BENDIX APPLICATION FOR EXPORT TO HUNGARY OF MODEL 100 SERIES TECHNOLOGY.) USSR EQUIPMENT APPEARED TO BE A THREE AXIS HARDWIRED CONTOURING SYSTEM BEING USED IN A TWO AXIS MODE. IT WAS A TRANSISTORIZED SYSTEM, QUITE LARGE IN SIZE, AND SHODDY IN APPEARANCE BY U.S. AND WESTERN STANDARDS. IT HAD A RESOLUTION OF 0.01 MM ON THE Z AND X AXIS. TAC TEAM WAS TOLD BY SOVIET TECHNICIAN, HOWEVER, THAT RESOLUTION WAS 0.005 MM ON THE AXIS.

B) THERE WAS EXTENSIVE PRESENTATION OF TESLA (CSSR) NC EQUIPMENT, BUT ALL SYSTEMS DISPLAYED OF CZECH DESIGN WERE POINT TO POINT AND STRAIGHT LINE, INTEGRATED CIRCUIT, HARDWIRED UNITS. THERE WERE CZECH MACHINE TOOLS EXHIBITED USING SIEMENS SINNUMERIK 520 AND PLESSY 3150 TWO AXIS, HARDWIRED, CONTOURING SYSTEMS. FORMER HAS A RESOLUTION OF 0.005 MM (0.0002 INCHES). AND LATTER, 0.01 MM (0.0004 INCHES). BASED ON AVAILABLE LITERATURE, AND CONVERSATIONS WITH CZECH TECHNICIANS, CSSR IS DEVELOPING NS 400 SERIES OF HARDWIRED, I.C., NC CONTOURING CONTROLLERS IN TWO TO FIVE AXES MODES, WITH A RESOLUTION OF ONE MICRON (0.001 MM). IN THIS CONNECTION, TECHNICAL DIRECTOR OF CSSR NC PRODUCTION TOLD TAC TEAM THAT IN ORDER FOR CSSR TO SELL IN WEST, THEY NEEDED TO STANDARDIZE AND MAKE THEIR NC SYSTEMS COMPATIBLE WITH WESTERN-PRODUCED UNITS. THEY THEREFORE WERE ATTEMPTING TO ENTER INTO LICENSING ARRANGEMENT WITH FARRAND OF WHITE PLAINS, NEW YORK FOR INDUCTOSYN MANUFACTURING TECHNOLOGY. IN ADDITION, CSSR GOVERNMENT OFFICIALS AND TECHNICIANS INDICATED TO US THAT THEY WERE ACTIVELY UNCLASSIFIED

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ENGAGED IN RESEARCH AND DEVELOPMENT ON COMPUTER-CONTROLLED (SOFTWIRED) CNC AND DNC SYSTEMS. THEY INDICATED THEIR DESIRE TO PURCHASE SMALL COMPUTERS FOR THIS PURPOSE FROM THE WEST, PARTICULARLY HEWLETT PACKARD MINI-COMPUTERS SINCE THEY COULD EASILY BE EXPANDED AND COULD BE EASILY INTERFACED WITH LARGER COMPUTER SYSTEMS FOR DNC APPLICATIONS.

C) EAST GERMANY EXHIBITED TWO AND THREE AXIS POINT TO POINT AND STRAIGHT-LINE, HARDWIRED NC SYSTEMS BELIEVED TO BE TRANSISTORIZED. POLAND DISPLAYED TWO AXIS, HARDWIRED, STRAIGHT LINE NC UNIT WITH RESOLUTION OF 0.01 MM. UNABLE TO DETERMINE FROM AVAILABLE LITERATURE

AND DISCUSSIONS WITH TECHNICIANS IF GDR AND POLAND POSSESS NC CONTOURING CAPABILITY. (GDR TECHNICIAN AT PARIS MACHINE TOOL SHOW IN 1972 TOLD TAC TEAM GDR DID PRODUCE NC CONTOURING EQUIPMENT, AND BELIEVE INFORMATION CURRENTLY AVAILABLE WASHINGTON AGENCIES INDICATES THIS.)

D) ROMANIA EXHIBITED NO NC EQUIPMENT, BUT THEIR DISPLAY OF INTEGRATED CIRCUIT ELECTRONICS INDICATED POTENTIAL FOR NEAR TERM PRODUCTION OF COMPONENTRY FOR STATE-OF-THE-ART NC SYSTEMS.

E) ON SEPT. 8, EMBASSY OFFICER AND TAC TEAM MET WITH VLADIMIR FERUS, CHIEF OF FOREIGN RELATIONS OF CSSR FEDERAL MINISTRY OF METALLURGY AND ENGINEERING, AND FOUR CZECH TECHNICIANS. FERUS STATED CSSR INTERESTED IN PURCHASING NC EQUIPMENT IN U.S. AND WANTED TO KNOW EXACTLY WHAT THEY COULD BUY WITHOUT RUNNING INTO EXPORT PROBLEMS. TAC TEAM RESPONDED IN MANNER SET FORTH IN REFTEL INDICATING THAT THEY COULD PURCHASE IN U.S. CONTOURING NC EQUIPMENT WITH 2 AXES, HARDWIRED, RESOLUTION OF ONE MICRON, AND WITH APPROPRIATE LIMITATION ON TAPE READER SPEED AND NO COMPUTER INTERFACE. CSSR OFFICIALS WERE ALSO INTERESTED IN NAMES OF U.S. COMPANIES WHERE THEY COULD PURCHASE U.S. EXPORTABLE NC EQUIPMENT AND SOURCES OF PUBLISHED INFORMATION ON USES OF NC EQUIPMENT. NAMES OF U.S. COMPANIES AND PERIODICALS (E.E., "MACHINE DESIGN", "AMERICAN UNCLASSIFIED

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MACHINIST", "CONTROL ENGINEERING") FURNISHED CSSR OFFICIALS. TAC TEAM ALSO MENTIONED TO CSSR POSSIBILITY OF THEIR JOINING AND PARTICIPATING IN WORK OF INTERNATIONAL STANDARDS COMMITTEES ON NUMERICAL CONTROL EQUIPMENT, WHICH CURRENTLY HAVE BLOC MEMBERSHIP, IN ORDER TO EXPAND GENERAL KNOWLEDGE ON NC TECHNOLOGY THROUGHOUT WORLD.

3. MACHINE TOOLS:

MACHINE TOOLS EXHIBITED BY EASTERN BLOC COUNTRIES WERE OF STANDARD, GENERAL PURPOSE VARIETY. IN GENERAL, MACHINES WERE NOT AS RUGGED AS U.S. EQUIPMENT, ALL HAD NOTICEABLE SMALL TRAVELS, AND TRAVERSE RATES WERE SLOW. MOST TOOL CHANGE MECHANISMS WERE SLOW, WITH EXCEPTION OF TURRET ON CSSR LATHE. ALL TOOLS VIEWED EMPLOYED HYDRAULIC, D.C. ELECTRIC OR STEPPING MOTOR DRIVES. GDR EQUIPMENT LOOKED SUPERIOR TO OTHER BLOC EQUIPMENT, PARTICULARLY WITH REGARD TO RUGGEDNESS. NO ADVANCED CONCEPTS SEEN, SUCH AS ANTI-FRICTION SLIDES, AIR BEARING SPINDLES, OR HYDROSTATIC SLIDES.

4. COMPUTERS:

A) HUNGARIANS EXHIBITED AND LISTED IN AVAILABLE LITERATURE WIDE RANGE OF INTEGRATED CIRCUIT MINI-COMPUTERS AND PERIPHERAL EQUIPMENT. THEY SHOWED THEIR TPA 1001 GENERAL PURPOSE SMALL COMPUTER WHICH THEY ADVERTISED FOR SCIENTIFIC, REAL TIME, AND INSTRUMENTATION APPLICATIONS, AND VIDEOTON 1010 MINI-COMPUTERS. THEY ALSO SHOWED ALPHA NUMERIC DISPLAYS, HIGH SPEED PRINTERS, AND MAGNETIC TAPE DRIVES. TPA 1001 COMPARABLE TO DEC, PDP-8I, AND VIDEOTON 1010 SIMILAR TO PDP 11, BUT PROBABLY SOMEWHAT INFERIOR IN OPERATIONAL CHARACTERISTICS. PRODUCTION OF RATHER SOPHISTICATED IC A/D AND D/A CONVERTERS, HIGH SPEED PRINTERS, ALPHA-NUMERIC DISPLAYS AND OTHER ASSOCIATED PERIPHERAL EQUIPMENT BY HUNGARIANS GIVE THEM BASIC BUILDING BLOCS OF TECHNOLOGY AND EQUIPMENT FOR DEVELOPMENT OF DNC AND CNC SYSTEMS.

B) SOVIETS HAD LARGE EXHIBIT ON ELECTRONICS IN WHICH THEY UNCLASSIFIED

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DISPLAYED EC 1030 AND COMPLETE LINE OF PERIPHERAL EQUIPMENT. THEY VERY WILLINGLY GAVE TAC TEAM EXTENSIVE LITERATURE ON EQUIPMENT SHOWN. LITERATURE BEING POUCHED.

5. OSCILLOSCOPES:

OSCILLOSCOPE DISPLAYS WERE IN ABUNDANCE. IN PARTICULAR, WE NOTED FRENCH FIRM, COMEF (SCHLUMBERGER) WERE EXHIBITING FOR SALE 150 MHZ AND 250 MHZ SCOPES, AND 1000 MHZ SAMPLING SCOPES.

WORTZEL

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